

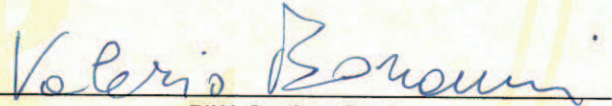


TYPE APPROVAL CERTIFICATE
No. ELE177217CS/004

This is to certify that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

<i>Description</i>	ELECTRIC CABLES
<i>Type</i>	GAALSHIP HF 1000 GAALSHIP HF 1000 A GAALSHIP HF 1000 A EMC GAALSHIP HF 1000 A FR EMC GAALSHIP HF 1000 FR GAALSHIP HF 1000 A FR.
<i>Applicant</i>	ELETTROTEK KABEL S.P.A. VIA IMERIO TONDELLI 10 42011 Bagnolo In Piano (RE) ITALY
<i>Reference standards</i>	RINA Rules for Classification of Ships Part C, Ch 2, Sec. 9; RINA Rules for Testing and Certification of Marine Materials and Equipment; IEC Standards (see enclosure).

Issued in **GENOVA** on **July 10, 2017**. This Certificate is valid until **July 10, 2022**



RINA Services S.p.A.
Valerio Bonanni

This certificate consists of this page and 1 enclosure





TYPE APPROVAL CERTIFICATE

No. **ELE177217CS/004**

Enclosure - Page 1 of 2

GAALSHIP HF 1000

GAALSHIP HF 1000 A

GAALSHIP HF 1000 A EMC

GAALSHIP HF 1000 A FR EMC

GAALSHIP HF 1000 FR

GAALSHIP HF 1000 A FR.

Materials/Components

Shipboard power cables, armoured/unarmoured, collective shield, halogen free with low smoke emission, flame retardant, fire resisting, for fixed installation on ships and offshore units.

Rated voltage: 0.6/1 kV

Type: GAALSHIP HF 1000; GAALSHIP HF 1000 A; GAALSHIP HF 1000 A EMC; GAALSHIP HF 1000 A FR EMC; GAALSHIP HF 1000 FR; GAALSHIP HF 1000 A FR.

Marking: ELETTROTEK KABEL GAALSHIP (cable type) (nominal cross section) SQMM 0.6/1 kV IEC 60092-353 IEC 60331 IEC 60332-3-22 (production plant) (production batch n°) (week of production /year) (meter marking)

Construction:

conductor: stranded plain or tinned copper (IEC 60228 Class 2 or Class 5)

mica tape on the conductor

insulation: XLPE

filler (if any): halogen free compound

separator : pet tape

armour: copper or tinned copper wire braid

shield EMC: collective shield CU/pet

sheath: SHF1

Max. conductor temperature: +90°C.

In accordance to rules IEC 60228 ; IEC 60092-350; IEC 60092-353; IEC 60092-360; IEC 60331-1; IEC 60331-21; IEC 60331-2; EN 50200; IEC 60332-1-2; IEC 60332-3-22; IEC 60754-1; IEC 60754-2; IEC 601034-1; IEC 61034-2; RINAMIL Rules; RINAMIL for FREMM Rules; RINA Rules for FPV; RINA FRSU Rules.

Data Sheets:

- EDTI 0010 Rev.1 dated 15/07/17 - HF 1000
- EDTI 0011 Rev.1 dated 15/07/17- HF 1000 A
- EDTI 0012 Rev.1 dated 15/07/17 - HF 1000 FR
- EDTI 0013 Rev.1 dated 15/07/17 - HF 1000 A FR
- EDTI 0037 Rev.1 dated 15/07/17 - HF 1000 A EMC
- EDTI 0038 Rev.1 dated 15/07/17 - HF 1000 A FR EMC



TYPE APPROVAL CERTIFICATE

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**GAALSHIP HF 1000
GAALSHIP HF 1000 A
GAALSHIP HF 1000 A EMC
GAALSHIP HF 1000 A FR EMC
GAALSHIP HF 1000 FR
GAALSHIP HF 1000 A FR.**

Test Reports:

IMQ Test Report N. CN16-0005784-01 dated 21/12/2016
IMQ Test Report N. CN16-0005784-02 dated 21/12/2016
IMQ Test Report N. CN16-0005784-03 dated 08/03/2017
IMQ Test Report N. CN16-0005784-04 dated 08/03/2017
IMQ Test Report N. CN16-0005784-05 dated 21/12/2016
IMQ Test Report N. CN16-0005784-06 dated 08/03/2017

Documents:

ELETTROTEK KABEL letter N. 20170707-1727 dated 07/07/2017
IMQ letter N. FP-cm-3538/2017 dated 04/07/2017


Remarks:

The product is subject to the compliance with RINA Rules and Standards mentioned on the certificates
Type Approval certifies that a representative sample of the products has been found to meet the applicable design criteria

Any modification of change shall not be valid until approval is granted by RINA as a result of due assessment.

Places of Manufacturing:

Via Torricelli 4/6 - 48022 - LUGO (RA) Italy


GENOVA July 10, 2017